L Number	Hits	Search Text	DB	Time stamp
1	15	"rna polymerase" same (mutation or error)	USPAT;	2003/10/29 12:31
_	10	near3 induc\$5	US-PGPUB;	
		110015 1110075	DERWENT	
2	810	("rna polymerase" same (mutation or	USPAT;	2003/10/29 12:41
2	010	error)) and (evolution or evolve or	US-PGPUB;	2000, 20, 23
1		selection)	DERWENT	
1	2	= = · · ·	USPAT;	2003/10/29 12:47
3	2	(("rna polymerase" same (mutation or	US-PGPUB;	2003/10/23 12.47
		error)) and (evolution or evolve or		
		selection)) and gold.in.	DERWENT	2003/10/00 10:37
4	1	"in vitro" near2 evolution and gold.in.	USPAT;	2003/10/29 12:37
			US-PGPUB;	
	1		DERWENT	0000/100/100
5	132	"rna polymerase" and gold.in.	USPAT;	2003/10/29 12:37
			US-PGPUB;	
			DERWENT	
6	33	("rna polymerase" and gold.in.) and	USPAT;	2003/10/29 12:40
		replicase	US-PGPUB;	
			DERWENT	
7	0	("rna polymerase" and gold.in.) and	USPAT;	2003/10/29 12:40
		replicase same pool	US-PGPUB;	
ì			DERWENT	
8	0	(("rna polymerase" same (mutation or	USPAT;	2003/10/29 12:40
		error)) and (evolution or evolve or	US-PGPUB;	
		selection)) and replicase same pool	DERWENT	
9	168	(replicase same (mutation or error)) and	USPAT;	2003/10/29 13:00
	100	(evolution or evolve or selection)	US-PGPUB;	2000, 20, 25
		(evolution of evolve of selection)	DERWENT	
1.0	77	((replicase same (mutation or error)) and	USPAT;	2003/10/29 12:41
1.0	·	(evolution or evolve or selection)) and	US-PGPUB;	2003/10/23 12.41
		target same (evolution or evolve or	DERWENT	
		selection)	DERWENT	
11	52	1	USPAT;	2003/10/29 12:59
11	52		l '	2003/10/29 12:39
		(evolution or evolve or selection)) and	US-PGPUB;	
		target same (evolution or evolve or	DERWENT	
	400	selection)) not gold.in.	***********	0000 /10 /00 10 50
12	409	hiv near8 selection	USPAT;	2003/10/29 12:59
			US-PGPUB;	
			DERWENT	
13	89	(hiv near8 selection) and target near8	USPAT;	2003/10/29 13:00
		selection	US-PGPUB;	
			DERWENT	
14	9249	(polymerase same (mutation or error)) and	USPAT;	2003/10/29 13:00
		(evolution or evolve or selection)	US-PGPUB;	
			DERWENT	
15	102	(hiv near8 selection) and (polymerase same	USPAT;	2003/10/29 13:00
		(mutation or error)) and (evolution or	US-PGPUB;	
		evolve or selection)	DERWENT	
16	34	((hiv near8 selection) and target near8	USPAT;	2003/10/29 13:01
		selection) and (polymerase same (mutation	US-PGPUB;	
		or error)) and (evolution or evolve or	DERWEN'T	
		selection)		
17	32	(((hiv near8 selection) and target near8	USPAT;	2003/10/29 13:01
		selection) and (polymerase same (mutation	US-PGPUB;	
		or error)) and (evolution or evolve or	DERWENT	
		selection)) and rna same (evolution or		
		evolve or selection)		
<u></u>		1 0.02.0 01 0010001011	L	1

L3 ANSWER 5 OF 8 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

DUPLICATE 2

ACCESSION NUMBER: 1996:71325 BIOSIS DOCUMENT NUMBER: PREV199698643460

TITLE: Why is the polymerase chain reaction resistant to in

vitro evolution?.

AUTHOR(S): Bull, J. J. [Reprint author]; Pease, C. M.

CORPORATE SOURCE: Dep. Zool., Univ. Texas, Austin, TX 78712, USA

SOURCE: Journal of Molecular Evolution, (1995) Vol. 41, No. 6, pp.

1160-1164.

CODEN: JMEVAU. ISSN: 0022-2844.

DOCUMENT TYPE: Article LANGUAGE: English

ENTRY DATE: Entered STN: 27 Feb 1996

Last Updated on STN: 27 Feb 1996

A variety of methods have been developed to amplify DNA and RNA. AΒ methods vary in their susceptibility to evolve new molecular species differing from the starting template. PCR is exceptionally resistant to in vitro evolution, whereas methods such as Q-beta replicase and 3SR are much less robust. This paper develops some simple mathematical models which suggest that PCR is resistant to in vitro evolution because the reaction controls replication in discrete cycles: fast replication is of little advantage during PCR because the reaction limits fast replicators as well as slow ones to a single copy per cycle. In contrast, continuous (isothermal) reactions, as in the Q-beta replicase reaction, favor fast replicators. The advantage of fast replication is compounded in continuous reactions, because a fast replicator can complete many generations of replication during the time it takes a slow replicator to complete one generation. These models suggest that continuous amplication protocols will never achieve the robustness against in vitro evolution observed with PCR.

(FILE 'HOME' ENTERED AT 10:40:19 ON 29 OCT 2003)

	FILE 'MEDL	INE, BIOSIS, CAPLUS, EMBASE' ENTERED AT 10:40:31 ON 29 OCT 2003
L1	5619	S "IN VITRO SELECTION" OR AFFINITY SELECTION OR "IN VITRO EVOLU
L2	13	S L1 AND REPLICASE
L3	8	DUP REM L2 (5 DUPLICATES REMOVED)
		E COIA G?/AU
L4	0	S E7 E6 E1 E2
L5	84	S E7 OR E6 OR E1 OR E2
L6	17	S L5 AND (EVOLUTION OR SELECTION)
L7	8	DUP REM L6 (9 DUPLICATES REMOVED)
L8	6	S L7 NOT L3

L Number	Hits	Search Text	DB	Time stamp
1	9	coia-g\$.in.	USPAT;	2003/10/29 10:47
			US-PGPUB;	
			DERWENT	
2	1	2000-039104.NRAN.	DERWENT	2003/10/29 10:50
3	1	"5602001."	DERWENT	2003/10/29 10:52
4	0	"5602001" and affinity	DERWENT	2003/10/29 10:53
5	0	"5602001" and select\$	DERWENT	2003/10/29 10:53
6	0	"5602001" and bind\$	DERWENT	2003/10/29 10:53

L Number	Hits	Search Text	DB	Time stamp
1	4722	affinity near10 selection	USPAT;	2003/10/29 10:30
1	4,22	diffility hearto serection	US-PGPUB;	2303, 10, 23 13.33
			DERWENT	
2	10118	bind\$ near10 specific near10 ligand\$	USPAT;	2003/10/29 10:33
-	10110	bindy hearts specific hearts rigand,	US-PGPUB:	2000, 20, 23 10.33
			DERWENT	
3	3728	replicase	USPAT;	2003/10/29 10:30
	3,20	Topiicus	US-PGPUB;	2000, 20, 23 10.00
			DERWENT	
4	ا ا	(affinity near10 selection) same (bind\$	USPAT:	2003/10/29 10:30
1		near10 specific near10 ligand\$) same	US-PGPUB;	2000, 10, 23 10.00
		replicase	DERWENT	
5	176	(affinity near10 selection) same (bind\$	USPAT;	2003/10/29 10:30
3	1	near10 specific near10 ligand\$)	US-PGPUB:	2000, 20, 20 20, 00
		nearly specific nearly riganat,	DERWENT	
6	2	(affinity near10 selection) same replicase	USPAT:	2003/10/29 10:32
ľ	-	(driffiley medito bolegeton, bame reprisade	US-PGPUB;	
			DERWENT	i
8	1	(bind\$ near10 specific near10 ligand\$)	USPAT;	2003/10/29 10:32
	_	same replicase	US-PGPUB;	,,
		June 10p120u01	DERWENT	1
9	2905	vitro near10 selection	USPAT;	2003/10/29 10:33
'	2300	Vicio indulio bolocoron	US-PGPUB;	
			DERWENT	
10	4	(vitro near10 selection) same replicase	USPAT;	2003/10/29 10:34
		, , , , , , , , , , , , , , , , , , , ,	US-PGPUB;	
i			DERWENT	
11	2	taussing-\$.in.	USPAT;	2003/10/29 10:35
			US-PGPUB;	1
			DERWENT	1
12	13885	(affinity near10 selection) or (bind\$	USPAT;	2003/10/29 10:35
	1	near10 specific near10 ligand\$)	US-PGPUB;	
İ		•	DERWENT	
13	3026	((affinity near10 selection) or (bind\$	USPAT;	2003/10/29 10:35
_		near10 specific near10 ligand\$)) and "RNA	US-PGPUB;	
		polymerase"	DERWENT	
14	13	((affinity near10 selection) or (bind\$	USPAT;	2003/10/29 10:35
		near10 specific near10 ligand\$)) near10	US-PGPUB;	1
		"RNA polymerase"	DERWENT	